



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

SA

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------------|------------------|
| 09/651,058 | 08/30/2000 | Shoutarou Yoda | 107156-00019 | 1169 |
| 7590 | 08/20/2004 | | EXAMINER | |
| Arent Fox Kintner Plotkin & Kahn PLLC 1050 Connecticut Avenue N W Suite 600 Washington, DC 20036-5339 | | | NOLAN, DANIEL A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2654 | |
| | | | DATE MAILED: 08/20/2004 17 8 18 | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/651,058 | YODA, SHOUTAROU |
| | Examiner | Art Unit |
| | Daniel A. Nolan | 2654 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 November 2003.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-3,5-9,11-15,17 and 18 is/are rejected.
- 7) Claim(s) 4,10 and 16 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 August 2000 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s). <u>040812</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 July 2004 has been entered.

Response to Amendment

3. The filing of 21 July 2004 was entered to the following effect:
- Claims 1, 7 and 13 were changed as indicated.
 - Claims 5-6, 11-12 and 17-18 were reorganized to new dependencies.
 - The changed and reconfigured claims were examined on the merits.

Claim Rejections - 35 USC § 103

Flanagan et al & Everhart et al

4. Claims 1, 7 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanagan et al (U.S. Patent 5,737,485) in view of Everhart et al (U.S. Patent 6,230,138).

5. Regarding claims 1, 7 and 13, the invention for *including microphone arrays and neural networks in speech/speaker recognition systems* of Flanagan et al reads on the features of the claims for *speech recognition* as follows:

- Flanagan et al reads on the feature of a *plurality of voice pickup means for picking up uttered voices* (2 in figure 1);
- Flanagan et al reads on the feature of *determination means for determining a speech signal suitable for speech recognition from speech signals output from the plurality of voice pickup means* (14 in figure 1); and
- Flanagan et al reads on the feature of *speech recognition means for performing speech recognition based on the speech signal determined by the determination means* (6 in figure 1).

Where Flanagan et al does not stipulate installation in a vehicle, Everhart et al, with the invention for *vehicle accessory control with integrated voice* discloses the added limitation that *the system is mounted on a vehicle with a plurality of seats* (18-24 in figure 1) having *voice pickups arranged in the neighborhood of respective seats* (36-40 in figure 1 – see lines 8-10 column 3) and *where the speech recognition means is in*

a single unit (70 in figure 3) capable of speech recognition for a plurality of voices (41-42 in figure 3 – see column 6 lines 29-33).

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Everhart et al to the device/method of Flanagan et al so as to virtually isolate and separate operations, means and objects without requiring separate physical accommodations for more than a single installation.

Flanagan et al, Everhart et al & Fedele

Claims 2-3, 6, 8-9, 12, 14-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanagan et al in view of Everhart et al and further in view of Fedele (U.S. Patent 4,627,091).

6. Regarding claim 2, 8 and 14; the claims are set forth with the same limitations as claims 1, 7 and 13, respectively. While Flanagan et al processes *speech signals output from the plurality of voice pickup means* for which *speech discrimination* is requisite (2→6 in figure 2) and teaches using well-known means of determining voice, neither Flanagan et al nor Everhart et al speak to the details of that function.

Fedele teaches the well-known feature that a signal with a *speech level equal to or higher than a predetermined speech level* (threshold or trigger, column 1 lines 27-32 & column 3 line 33) *and continues over a predetermined period of time is determined* as the *speech signal suitable for speech recognition* (illustrated by figure 1). It would have

been obvious for Flanagan et al and/or Everhart et al to employ the well-known criteria disclosed by Fedele to limit processing to actual voice and therefore avoid excessive attempts to resolve mis-recognized commands triggered from background noise.

7. With regard to claims 3, 9 and 15, the claims are set forth with the same limitations as claims 1, 7 and 13, respectively. Flanagan et al processes relative SNR but both they and Everhart et al are silent on a limit or threshold (see table 5 column 12 through to column 13 line 21). Fedele (column 1 lines 66-68) reads on the feature that *acquires an average S/N value and average voice power of each of the speech signals output from the plurality of voice pickup means* (column 6 line 60-68) and *selects that of the speech signal whose average S/N value and average voice power are greater than respective predetermined threshold values* (column 5 lines 36-45) as the *speech signal suitable for speech recognition* (see column 6 lines 33-38).

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Fedele to the device/method of Flanagan et al & Everhart et al so as to limit the amount of data stored, to store only speech.

8. With regard to claim 6, 12 and 18; the claims are set forth with the same limitations as claims 1, 7 and 13, respectively. The feature defining that the unsuitability of other speech signals (*than the speech signal suitable for speech recognition, that speech signal*) whose average S/N value and average voice power become minimum is

treated as a noise signal by the determination means is well-known in the art of speech signal processing as taught by Fedele (column 2 lines 13-18) which would have made it obvious for Flanagan et al and/or Everhart et al to incorporate the teachings of Fedele at the time of the invention to identify and process levels as noise so as to provide continuity for complex command sequences.

Flanagan et al, Everhart et al, Fedele & Bowen

9. Claims 5, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanagan et al in view of Everhart et al and further in view of Fedele and further in view of Bowen (U.S. Patent 5,561,737).

10. With regard to claims 5, 11 and 17; the claims are set forth with the same limitations as claims 1, 7 and 13, respectively. Where Flanagan et al recognizes noise in speech (12 in figure 2) but does not specify processing and where Fedele simply disregards non-speech (column 3 lines 28-37), neither Flanagan et al nor Everhart et al nor Fedele specify discriminate processing of noise.

Bowen reads on the feature that *treats those of the speech signals which are other than the speech signal suitable for speech recognition as noise signals* (column 8 line 66 to column 9 line 1). It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Bowen to the device/method of Flanagan et al, Everhart et al &

Fedele with the well-known shared objective of all references being to differentiate between commands and noise.

Allowable Subject Matter

11. Claims 4, 10 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The indicated allowability of claims 5-6, 11-12 and 17-18 as being allowable by virtue of being dependent upon allowable base claims is withdrawn in view of the newly reorganized dependencies.

13. The following is a statement of reasons for the indication of allowable subject matter:

- Selection of a dominant microphone of an array by comparative means would be done were Everhart et al to employ the means of the closest cited prior art Bowen.
- Regarding claims 4, 10 and 16; the cited prior art of Flanagan et al and Fedele, in *determining speech signal candidates whose average S/N values and average voice powers are greater than the respective predetermined threshold values and which are candidates for the speech signal suitable for speech recognition, in accordance with the average S/N values and average voice powers necessarily determines a*

candidate order of those speech signals in order to rank the results. However, the further feature that subsequently sequentially executes speech recognition on the candidates in accordance with the candidate order from a highest candidate to a lower one is neither anticipated nor is it found in obvious combination in the prior art of record.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, supervisor Richemond Dorvil can be reached at (703)305-9645.

The fax phone number for Technology Center 2600 is (703)872-9314. Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE". Formal response to this action may be faxed according to the above instructions,

or mailed to:

P.O. Box 1450
Alexandria, VA 22313-1450

or hand-deliver to: Crystal Park 2,
2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).

Application/Control Number: 09/651,058
Art Unit: 2654

Page 9

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan
Examiner
Art Unit 2654

DAN/d
August 17, 2004



RICHMOND DORVIL
SUPERVISORY PATENT EXAMINER